Conclusion This systematic review showed that increased CRP levels appeared to have a trend towards a higher probability of developing DHF/DSS. However, a larger population size and more studies are needed to further establish a statistically significant relationship.

PP145

Generating and characterizing of monoclonal antibody against non-structural proteins one of Zika virus

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Zika virus belongs to Flaviviridae family.For flaviviruses, NS1 protein has been used as a marker for early infection diagnosis and to trigger protective antibodies. Currently, there is no drug or vaccine available to treat and prevent the Zika virus.The purpose of this study is to produce an anti-Zika NS1 monoclonal antibody and to identify the characteristics of monoclonal antibodies and their application in the diagnosis of the Zika virus.Firstly, the mice were immunized with Zika virus NS1 recombinant proteins of SPH2015 virus. The monoclonal antibodies produced in mice sera were detected by ELISA. The monoclonal antibodies were then prepared by the fusion tumor technique and restrictive dilution method. 6 monoclonal antibodies (4-1E, 4-1H, 4-3C, 5-5E, 5-5F, 5-7H) were selected. The binding properties of monoclonal antibodies were evaluated by ELISA and denatured and non-denatured Western Blot. The results showed that 6 monoclonal antibodies bind to both structural and liner antigens. Then, phage display was used to identify the antigen sites of a monoclonal antibody. The results showed that the antigen sites identified by 4-1E antibody were 225, 226, 244 and 246. The antigen sites identified by 4-1H antibody were 100, 102 and 103. The antigen sites identified by 4-3C antibody were 17, 18 and 19. The antigen sites identified by 5-5E antibody were 57, 58, 60 and 62 .The antigen sites identified by 5-5F antibody were 103, 104 and 106. The antigen sites identified by 5-7H antibody were 97, 98 and 100.

Next, we evaluated the neutralizing properties of these monoclonal antibodies by FRNT. The results showed that neutralizing ability to zika virus was not detected. Following these results, these monoclonal antibodies will be used to establish a detection platform for Zika virus and to evaluate whether these monoclonal antibodies may display protective ability by using in vivo mouse models.

PP146

Cross-sectional prevalence study of MERS-CoV in local and imported dromedary camels in Saudi Arabia, 2016-2018

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The Middle East Respiratory Syndrome-Coronavirus (MERS-CoV) is an endemic virus in Middle Eastern and African dromedaries. Annually, Saudi Arabia imports thousands of camels from the Horn of Africa, yet the epidemiology of the virus in these animals is largely unknown. Here, MERS-CoV prevalence was compared in imported African camels and their local counterparts.

A total of 1399 paired sera and nasal swabs were collected between 2016 and 2018 from camels from Sudan (n = 829), Djibouti (n = 328) and Jeddah (n = 242). Imported animals were sampled on incoming ships at Jeddah Islamic seaport before unloading. Samples were screened for neutralizing antibodies (nAbs) and MERS-CoV viral RNA by RT-PCR.

The overall seroprevalence was 92.7% and RNA detection rate was 17.2 %. Imported camels had higher seroprevalence compared to resident herds (93.8% vs 87.6%, $p < 0.01$) in contrast to RNA detection (13.3% vs 35.5%, $p < 0.0001$). Seroprevalence significantly increased with age ($p < 0.0001$) and viral RNA detection rate was ∼2-folds in camels < 2-year-old compared to older camels. RNA detection was higher in males verses females (24.3% vs 12.6%, $p < 0.0001$) but seroprevalence was similar. Concurrent positivity for viral RNA and nAbs was found in > 87 % of the RNA positive animals, increased with age and was sex-dependent. Importantly, reduced viral RNA load was positively correlated with nAb titers.

Our data confirm MERS-CoV widespread in imported and domestic camels in Saudi Arabia and highlight the need for continuous active surveillance and better prevention measures. Further studies are also warranted to understand the correlates of protection in camels for proper vaccine development.

PP147

MERS-CoV infection is associated with downregulation of genes encoding Th1 and Th2 cytokines/chemokines and elevated inflammatory innate immune response in the lower respiratory tract

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Background and Purpose MERS-CoV, a highly pathogenic virus in humans, is associated with high morbidity and case fatality. Inflammatory responses have a significant impact on MERS-CoV pathogenesis and disease outcome. However, CD4+ T-cell induced immune responses during acute MERS-CoV infection are barely detectable, with potent inhibition of effector T cells and down-